

DRAFT

Economic Growth and Development in the Kennebec Valley and Implications For Higher Education

Charles S. Colgan
Professor of Public Policy and Management
Muskie School of Public Service
Associate Director
Center for Business and Economic Research
University of Southern Maine

Kenneth C. Young, Jr
Executive Director
Kennebec Valley Council of Governments
Fairfield

September 2005

As the question of the future of higher education institutions in the Kennebec Valley region is considered, one set of considerations focuses on the future economic growth in the area. Three broad questions may be asked:

- What are the implications of economic growth trends for the types of jobs that will be needed in the region?
- How might plans to alter the structure of the regional economy affect the types of jobs in the region?
- What are the implications of likely and possible trends for the delivery of higher education in the region?

This paper examines available data about the Kennebec Valley region to provide answers to the first two questions and suggests some directions that may be a useful starting point for discussions regarding the third. For purposes of the analysis, the Kennebec Valley region is defined as Kennebec and Somerset counties.

1. Labor Market Trends

The Kennebec Valley region is currently the location of approximately 100,000 jobs. This count is based on the total employment in the region, including wage and salary employment, self-employment, and agricultural employment. Taking wage and salary employment alone, there are about 75,000 jobs, three quarters of which are found in Kennebec County and the balance in Somerset County. Together, the two counties comprised about one eighth of Maine employment in 2004.

Employment structure and trends can be examined two ways: by industry and by occupation. Table 1 shows an estimate of the distribution of employment by occupation and industry for 2005. The occupational categories are the major groups of the Standard Occupational Code (SOC), while the industrial categories are the “supersectors” defined under the North American Industrial Classification System (NAICS).¹

As is fairly typical for the Maine economy, and indeed for most regions, the largest occupations are in the sales, office, administration, and the personal and building services occupations. Together these occupational groups account for about 32% of the employment in the region. The largest industry by employment is health care and social assistance, with retail trade second. These two industries account for about 29% of the employment. State government is third, reflecting the capital at Augusta. Together with local government and the federal government, government accounts for about 18% of employment in the region.

¹ For more information on the SOC, see the Bureau of Labor Statistics at <http://www.bls.gov/soc/home.htm>. For information about NAICS, see the Census Bureau at <http://www.census.gov/epcd/www/naics.html>

By Occupation		By Industry	
	2005		2005
Sales, office, admin	20.052	Health Care, Social Asst	15.785
Blding, grnds, pers care, serv	12.422	Retail Trade	14.453
Mngmnt, bus, fin	9.071	State Gov	9.748
Food prep, serving rel	7.029	Manufacturing	8.34
Educ, train, lib	6.689	Local Gov	7.474
Healthcare	6.495	Construction	6.398
Production	5.889	Accom, Food Services	5.945
Farm, fish, forestry	5.44	Other Services (excl Gov)	5.421
Arts, des, enter, sports, media	4.744	Profess, Tech Services	4.481
Protective service	4.478	Wholesale Trade	3.428
Construction, extraction	4.412	Admin, Waste Services	3.119
Install, maint, repair	3.428	Educational Services	2.534
Comp, math, arch, eng	3.314	Finance, Insurance	2.382
Transportation, materials moving	3.217	Real Estate, Rental, Leasing	2.072
Legal	2.154	Transp, Warehousing	2.047
Comm, soc serv	2.115	Arts, Enter, Rec	2.035
Life, phys, soc sciences	0.906	Forestry, Fishing, Other	1.432
		Information	1.090
		Mngmt of Companies & Enterprises	1.050
		Utilities	0.329
		Mining	0.044

Table 1: Employment Estimates in Thousands of Employees for 2005

Source: USM Center for Business and Economic Research

A better way to appreciate the region's particular occupational characteristics is through an analysis of specialization ratios. These ratios compare the proportion of employment in a particular occupation in the Kennebec Valley region to the proportion of that occupation in Maine, or another reference region such as the U.S. as a whole.² A ratio greater than 1 indicates there are more employees in that occupation in the Kennebec Valley than in Maine or the U.S. indicating that the Kennebec Valley is specialized in that occupation. A ratio less than 1 indicates the Kennebec Valley is not specialized in that occupation.

² Also known as location quotients. Define: $S = \frac{E_i^r}{\frac{E^r}{E^R}}$ where E_i^r is employment in occupation i in the

Kennebec Valley, E^r is total employment in the Kennebec Valley, E_i^R is employment in occupation i in the reference region (Maine or the U.S.) and E^R is total employment in the reference region.

	v. Maine	v. US
Life, physical, and social science	1.48	1.20
Legal	1.36	1.10
Community and social services	1.27	2.18
Computer and mathematical	1.16	0.35
Healthcare support	1.15	1.47
Business and financial operations	1.11	0.91
Healthcare practitioners and technical	1.10	1.23
Education, training, and library	1.10	1.32
Protective service	1.07	0.83
Transportation and material moving	1.05	1.01
Office and administrative support	1.04	0.96
Management	1.00	1.14
Food preparation and serving related	0.95	1.08
Production	0.92	0.84
Construction and extraction	0.92	0.98
Installation, maintenance, and repair	0.91	0.95
Building and grounds cleaning and maintenance	0.90	0.99
Sales and related	0.88	0.85
Farming, fishing, and forestry	0.86	1.00
Architecture and engineering	0.77	0.68
Personal care and service	0.75	0.64
Arts, design, entertainment, sports, and media	0.73	0.60

Table 2: Specialization Ratios for Occupations in the Kennebec Valley Region

Source: Bureau of Labor Statistics, Maine Department of Labor, USM CBER

From Table 2, the Kennebec Valley region appears to be highly specialized, particularly compared to Maine, in life, physical and social science occupations. This specialization is due to the location of state government and several institutions of higher education such as UMA and Colby in the region, all of which are reasonably large employers. However this occupational category is also the smallest in size in terms of numbers of employees of all the major occupation types, limiting the economic benefit of these occupations. A similar comment may be made with respect to legal occupations: high specialization in a small occupation type.

Among the larger occupational types, those with more employees, the region is relatively specialized in community and social services jobs, particularly relative the U.S; the proportion of these jobs is more than twice the level in the Kennebec Valley as in the nation, though only a little higher than in Maine. The region is about the same as the state in the proportion of management occupations, and below both the state and nation in the sales and office administration occupations.

The region is moderately specialized in computer and mathematical related occupations. These are primarily computer and information technology related occupations. The Kennebec Valley region is more specialized in these occupations than Maine, but significantly less so than the U.S.

The future demand for occupations and skills can be seen first from the perspective of a forecast of basic trends. The following data is taken from the preliminary 2005 long range forecasts of Maine regional economies prepared by the USM Center for Business and Economic Research. The general directions of these forecasts reflect moderate growth assumptions for the U.S. and Maine economies, and the trends indicated for the period 2005 to 2020 would be sustained beyond 2020 in the economic models used for the forecast.

Figure 1 shows the growth rates for occupations, while Figure 2 shows the forecast absolute changes in occupational positions in the region over the next 15 years. Healthcare workers show both the largest growth rates and the largest absolute growth. As shown in Tables 1 and 2, the health care industry is the largest in the region, and health care occupations are the largest grouping. According to the CBER projections, health care occupations will comprise nearly 18% of job growth by occupation type over the next 15 years.

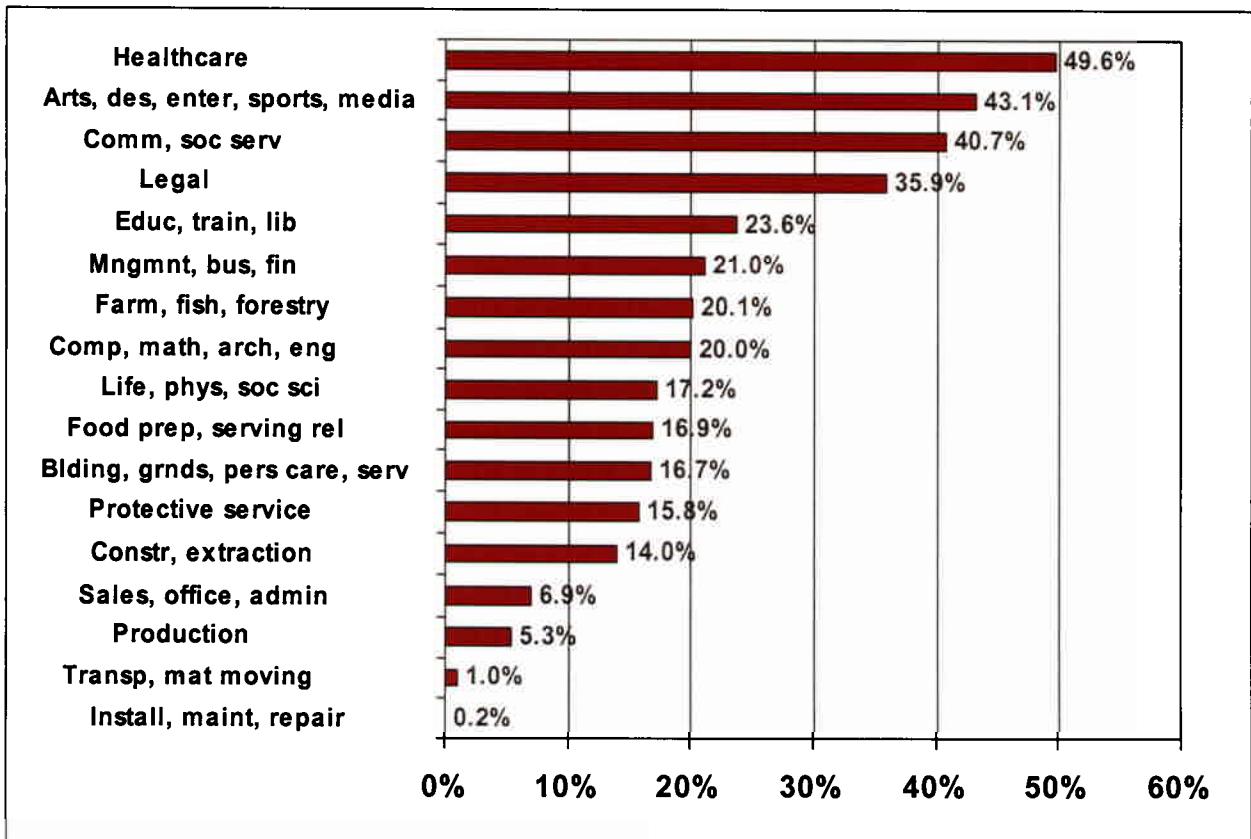


Figure 1 Growth Rates for Occupation Types in Kennebec Valley 2005-2015

Source: USM CBER

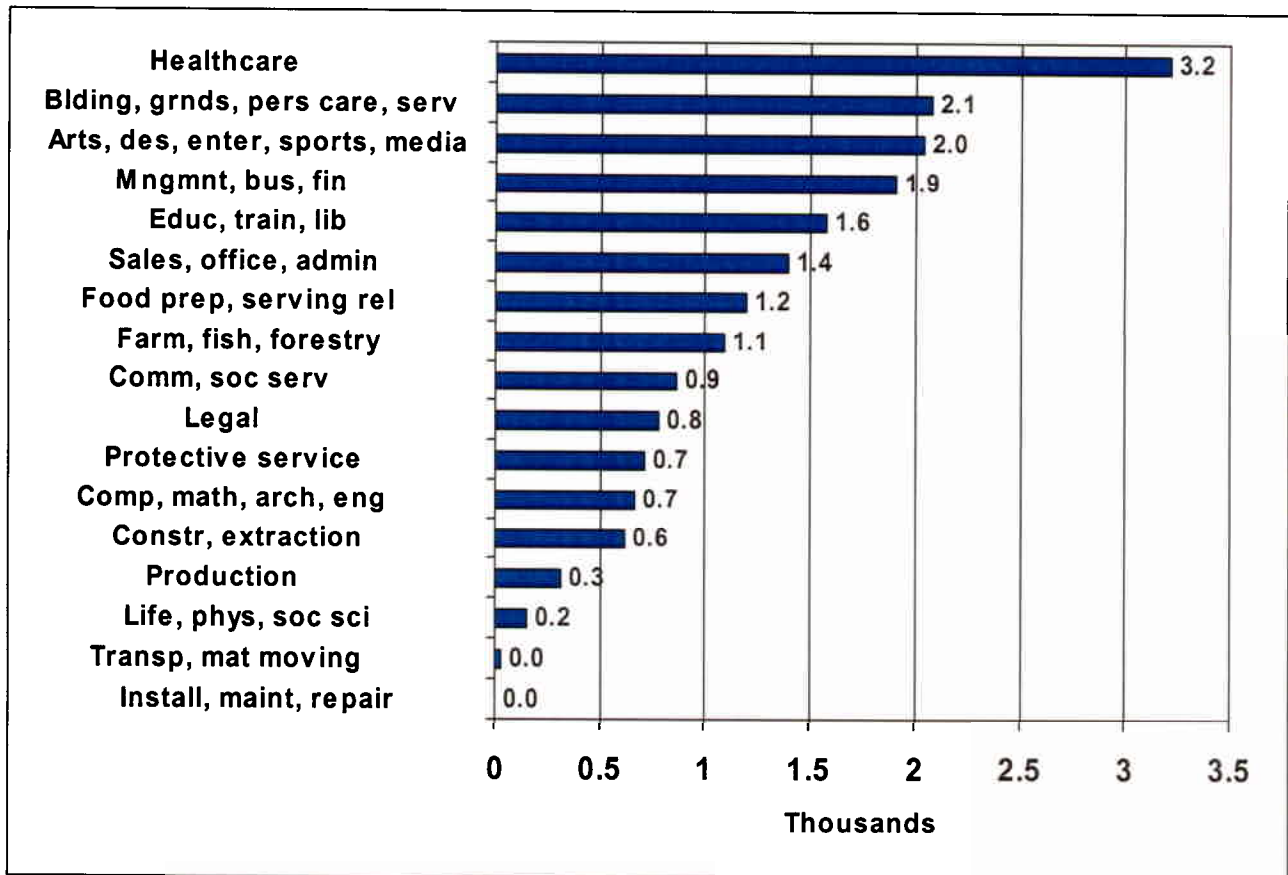


Figure 2 Growth in Occupation Types in Kennebec Valley 2005-2015 (Thousands)

Source: USM CBER

A second sector to note in the growth projections is arts, design, entertainment, sports, and media occupations. In the Kennebec Valley region this is in large part media related occupations, along with arts related occupations in the institutions of higher education. This sector shows both significant growth and growth rates, though it is a sector of moderate size (about 4,700 in 2004) and one in which the region shows the lowest specialization.

Among the technical categories, the science related occupations, currently small but highly specialized in the region, show a moderate growth rate of about 1% per year, though the absolute growth is relatively small at only about 200 in these projections. Computer and mathematical occupations in which the region shows moderate specialization relative to Maine (though not the U.S.) also show moderate growth prospects.

Of the large occupational sectors, building and personal services shows the second largest growth projection for numbers. Community and social service occupations show moderate growth projections, though the growth rates for this type are third fastest.

2. Plans for Economic Change in the Region

The foregoing analysis presents a picture of regional economic change based on assumptions about the overall rate of economic and population growth in the region, Maine, and the U.S. and the projection forward of recent growth and regional cost structures. However, efforts are underway throughout the region to alter the future in a variety of ways, and these too must be taken into account.

A number of economic development plans exist that lay out efforts to alter the structure of the Kennebec Valley and other regional economies in Maine. The Kennebec Valley Council of Governments (KVCOG) has sponsored or participated in many of the regional planning efforts. The following documents were examined to document regional development plans and efforts:

- Augusta Labor Market Steering Committee- KVCOG *Economic Development Strategy Action Plan* 1998
- Mt. Auburn Associates *Working Together Toward a New Economy: An Economic Development Plan for the Waterville Labor Market Area* 1999
- Kennebec Valley Council of Governments *Comprehensive Economic Development Strategy: 2002 - 2005*
- Maine Science and Technology Foundation *Assessing Kennebec Valley's Technology Clusters* 2003

In addition, recent studies on the creative economy in Maine and Governor Baldacci's Economic Development Strategy provide additional insight into the economic plans for the region.

Virtually all of the economic plans at both the regional and state level note the importance of a well-trained, high quality workforce for future economic success. The regional plans note the presence of a number of institutions of higher education in the region as an asset upon which to build. However, none are very explicit about the relationship between economic development goals and specific questions about how the region's higher education resources could be best deployed to achieve those goals. Some themes do emerge from the plans that point to expectations and aspirations concerning changes to the Kennebec Valley economy.

Manufacturing and Natural Resource Industries have been the mainstay of the region for most of its history, but it is recognized that the major changes in these industries over the past three decades are likely to be permanent and that these industries will no longer play their former major role. Economic development strategies focus on helping existing companies survive through lower costs, improved public services, and management assistance. The hope of attracting new manufacturing firms to the region remains alive, but is not central to development strategies.

Small Business Development, including fostering entrepreneurship, remains a key part of all the economic development strategies at the state and regional level.

“Training” is another common theme in the economic development plans, but in this context it is often discussed in either general terms (“well educated workforce”) that has no specific strategic import or as a reactive element in economic attraction efforts. That is, custom training of workers for specific employers will be arranged on an as needed basis as KVTC did with The Jackson Laboratory for its facility.

Targeted Industries are mentioned by a number of the plans. These include:

Technology Sectors Maine has identified seven key technology sectors plus one specific industry that are to be the focus of state economic development efforts. The seven sectors include: biotechnology, information technology, environmental industries, precision manufacturing, marine industries, composites & advanced materials, and forest products-agriculture. To this list of sector has been added the Radio Frequency Identification (RFID) industry.

A 2003 study of the technology sectors in the Kennebec Valley region identified the biotechnology and information technology sectors as potentially very important to the region. There has already been development in the biotechnology field in the Jackson Laboratory, the Teague Biotechnology Park, and in a program at KVTC to train workers in this field. These developments provide a foundation for future growth in this sector in the region. Information technology was noted as a potentially important growth area because of the existence of small firms in the region (particularly in geographic information technologies) and the presence of State Government, an increasingly IT-reliant institution. Environmental technologies were also noted as a potentially important sector where there are individual successful companies in the region, but as yet no clear focus as to the region’s role in this sector.

Financial Services is one of the state targeted industries. Its specific role in regions such as the Kennebec Valley is unclear, since these industries have been undergoing massive consolidation with the result that smaller operations in regions like Augusta and Waterville have been moved elsewhere.

The development of “back office” operations for the processing of transactions and of teleservices operations such as MBNA’s and T-Mobile’s call centers remains an area where economic development efforts are active. As these two examples illustrate, it is actually better to think of these as teleservices operations, irrespective of what specific goods and services the companies provide. Teleservices will likely remain an economic development opportunity for the region.

Creative Economy A great deal of attention has been focused on the “creative economy” in Maine as a potential focus of economic development. The concept of the “creative economy” is a broad one, but in recent discussions it has been taken to mean both the technology sectors and industries discussed above and the arts and culture industries and related occupations. Appendix 1 provides a listing of the industries that were defined as the

arts and culture industries in Maine and the occupations associated with the “creative economy”.³

The arts and culture sectors are small in the Kennebec Valley region, as they are everywhere in Maine outside of Cumberland, Penobscot, and York counties, which together make up two thirds of the employment in this sector. Kennebec County has about 6% of its employment in the arts and culture industries, which is actually fifth highest percentage among the sixteen counties. Somerset County has only about 1% of its employment in this area.

Tourism & Recreation As the traditional extractive natural resources have declined, the role of Maine’s lands and waters for tourism and recreation is assuming larger and larger importance. The arts and culture sectors of the creative economy are another key element in the efforts to enhance tourism and recreation related development. Both state and regional plans identify this as a key sector for all Maine regions.

There are two other issues to which attention has been drawn in economic development discussion in Maine that also deserve attention:

Youth migration is a significant problem in many parts of the state, particularly in inland regions such as the Kennebec Valley. A Blaine House Summit was held on this subject in 2004, and KVCOG has identified this issue as one for future attention in its economic development planning.

International Trade has long been identified as a key economic development strategy for the state. The encouragement of exports cuts across virtually all sectors of the state’s economy and all regions.

3. Implications for Higher Education

The precise implications of the trends and plans for economic growth and development in the Kennebec Valley region are matters that must be addressed at the System (both UMS and MCCC), campus, and program level. The following general observations based on what is known and what is planned for the region may serve as a basis for those efforts.

First, and most importantly, higher education must be seen as primarily about the individual and their chances for a better life with higher education than without it. Higher education is undoubtedly a key, perhaps the most important key, to long-term economic success for the State of Maine and for regions within the state such as the Kennebec Valley. Nonetheless, that success is achieved only through the individuals who successfully complete their education, and it is their needs *as individuals* which should always be paramount.

Second, higher education has such broad reaching effects on the lives of individuals that it’s role in the evolution of the economy cannot be limited to specific programs of study

³ For more information, see http://www.mainearts.com/mainescreativeeconomy/conference/ce_research.shtml

linked to specific economic roles that people play after graduation. There are two reasons for this:

1. Outside of certain occupations where specific credentials or technical knowledge are required, the principal benefits of higher education are in acquiring knowledge in general areas and in developing analytic, communication, and learning skills. When asked, employers will usually say that what they need in an educated workforce are precisely these skills, and that the specifics of a particular business or industry can easily be imparted once a person is hired. Thus it is the *quality* of the higher education experienced as expressed in the graduates' general abilities that are most critical.
2. The rapid evolution of the economy means that technical knowledge is almost always short-lived. Highly specific educational programs can often be made obsolete in a short time, and the graduates of those programs can be placed at a significant disadvantage if they have not first acquired in their education the ability to learn and adapt quickly.

For these reasons, debates about higher education must focus first on assuring that institutions, programs, and resources provide the basic skills characteristic of an educated person, and then on providing them with the opportunity to pursue what will probably be the first of many specialties that they will acquire and use over their lives. There are important linkages between the types of higher education institutions and programs in a region and long-term regional success, but these ultimately derive from the first two points above and less than from the availability of specific programs. The majority of the job growth in the region, whether forecast or the result of specific development strategies, will be in jobs in the general occupation areas of services, management, et cetera, rather than in specific specialty areas.

With that in mind, the following observations will help link the Kennebec Valley economy with higher education:

- The role of health care clearly is a large one in the region, one in which all of the data point to expansion. This is an area where there is both occupational and industrial specialization in the region. No economic development strategies mention health care as a target, but larger trends will make it a key industry and a key occupational setting. It should also be noted that jobs available in health care could be an important factor in encouraging at least some young people who aspire to careers in this field remain in the region.
- The creative economy, encompassing both the technology and arts-culture areas, is a major economic development priority at both the state and regional levels. Its success will be a major factor in sustaining and growing the regional economy. Biotechnology and information technologies have already gained important footholds in the economy and higher education institutions. The region has a high specialization in the sciences, but this specialization is in a very small sector measured by total employment. The region, particularly Kennebec County, also has a potentially key role to play in the growth of the arts and culture sectors of the creative economy.

- The role of tourism and recreation in the region is evolving, as is the role of tourism and recreation in higher education. The recent establishment of a University of Maine System Center for Tourism Research and Outreach is the beginning of increased attention to the economic development-higher education links in this area. It is yet too early to say how these links will evolve, but this is an area likely to receive increasing attention in the next five years.
- Success in the field of international trade will depend critically on the region's higher education graduates. Fear of the risks associated with selling internationally is often a major impediment to businesses, and that fear can be partly dealt only through trade development programs. Familiarity with the world beyond Maine and the U.S., acquiring a "global perspective", is the first requisite to undertaking business ventures beyond the borders, and that is most often acquired during a person's higher education experiences.
- The Kennebec Valley is home to major governmental institutions at all levels of government. As a major employer in the region, the public sector's needs are also part of the economy-higher education link. This is obviously the case with State Government, but it is also true of local government and the federal agencies that operate in the region. This includes, but is not limited to, the large proportion of community and social service jobs in the region.
- Maine as a whole and the Kennebec Valley region in particular, lacks adequate opportunities for graduate education, which is increasingly the mark of truly competitive regions. While it is unlikely that entirely new graduate level institutions will be established in the region soon, the availability of graduate education, particularly in the professions and sciences, needs to be one part of the consideration of the role of higher education in the region's economy.

Conclusions

The Kennebec Valley economy is diverse and its fundamental needs from higher education are for an educated population that can meet the needs of a diverse and rapidly changing economy. The region does have specializations in health care and government which are distinctive, and seeks additional specialization in areas of the creative economy, particularly in technology sectors. The challenge for the institutions of higher education in the region is to meet the needs of the residents of the region for the broad benefits of higher education, to address the specific needs of specialized areas in the economy, and provide a foundation for the regions growth in specific areas.

Appendix 1

The Industries and Occupations of the Arts and Culture sectors of the Creative Economy

Source: Barringer, et. al The Creative Economy in Maine: Proceedings of the Blaine House Conference on the Creative Economy (2004)

The Arts and Culture Industries

Applied Arts	Advertising Agencies Architectural Services Commercial Flexographic Printing Display Advertising Graphic Design Services Industrial Design Services Interior Design Services Landscape Architectural Services Other Specialized Design Services Photographic Services	Media	Cable and other program distribution Motion Picture and Video Distribution Motion Picture and Video Production Music Publishers Periodical Publishing Prerecorded Compact Disk, Tape, and Recording Radio stations Record Production Sound Recording Studios Television broadcasting
Crafts	Jewelry Manufacturing Jewelry Stores	Performing Arts	Agents and Managers for Artists Dance Companies Musical Groups and Artists Musical Instrument Manufacturing Musical Instrument and Supplies Stores Other Performing Arts Companies Theater Companies and Dinner Theatres
Education	Fine Arts Schools Libraries and Archives		
Heritage	Historical Sites Museums		
Independent Artists	Independent Artists, Writers, and Performers		
Literary Arts	Book publishing	Visual Arts	Art Dealers Camera and Photographic Supplies Stores Commercial Portrait Photography Lead Pencil and Art Good Manufacturing

The Arts and Culture Occupations

Architects	Public relations specialists
Artists and related workers	Editors
Designers	Technical writers
Actors	Miscellaneous media and communication workers
Producers and directors	Broadcast and sound engineering technicians / operators
Dancers and choreographers	TV, video, and motion picture camera operators & editors
Musicians, singers and related workers	Media and communication equipment workers
Entertainers, performers and related workers	Motion picture projectionists
Announcers	Ushers, lobby attendants, and ticket takers
Writers and authors	Library assistants, clerical
Photographers	Precision instrument and equipment repairers
Archivists, curators, and museum technicians	Model makers and patternmakers, metal & plastic
Cabinet makers and bench carpenters	Cabinet makers and bench carpenters
Painting workers	Furniture finishers
Librarians	Wood patternmakers and model makers
Library technicians	Jewelers and precious stone and metal workers
News analysts, reporters, and correspondents	Etchers and engravers